

Off-Road Implementation Advisory Group

November 5, 2009

California Environmental Protection Agency

Air Resources Board



Agenda

1. Fleet Average Calculator Update

2. Regulation Implementation Update

3. New Retirement and Reduced Activity Credits

4. Public Comment Period

This meeting will be recorded.

E-mail questions to:
eiwhite@arb.ca.gov

Call-in number is for members only,
until the Public Comment Period

Fleet Average Calculator Update

- **Fleet Average Calculator and Compliance Planning**

Cory Parmer

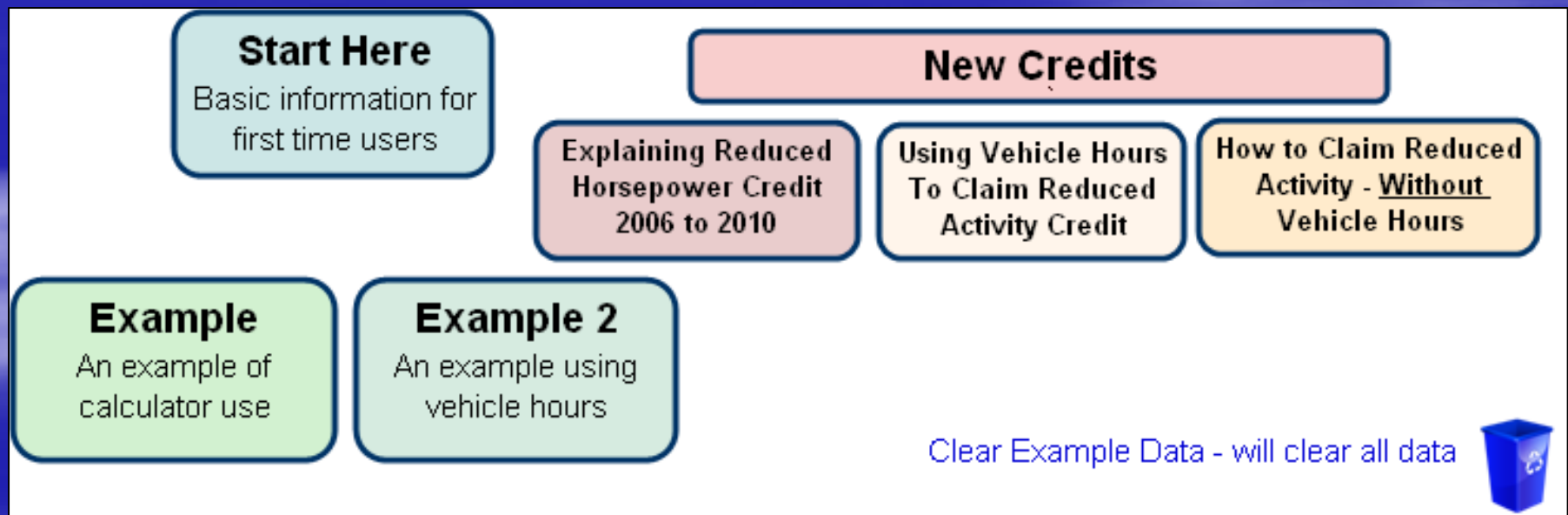
Calculator Overview

- Excel based compliance planning tool
- First released in August, 2006
- Updated due to AB8 2X: significant changes to early years of the regulation
 - New credits
 - New BACT schedule

Early Reduced Horsepower Credit =
Reduced Activity Credit
Early Repower, NOx Retrofit Credit Earned through 2009 (hp):
Early PM VDECS Credit Earned through 2009 (hp):
Early TO Replacement Credit through 2009 (hp):

Calculator Changes

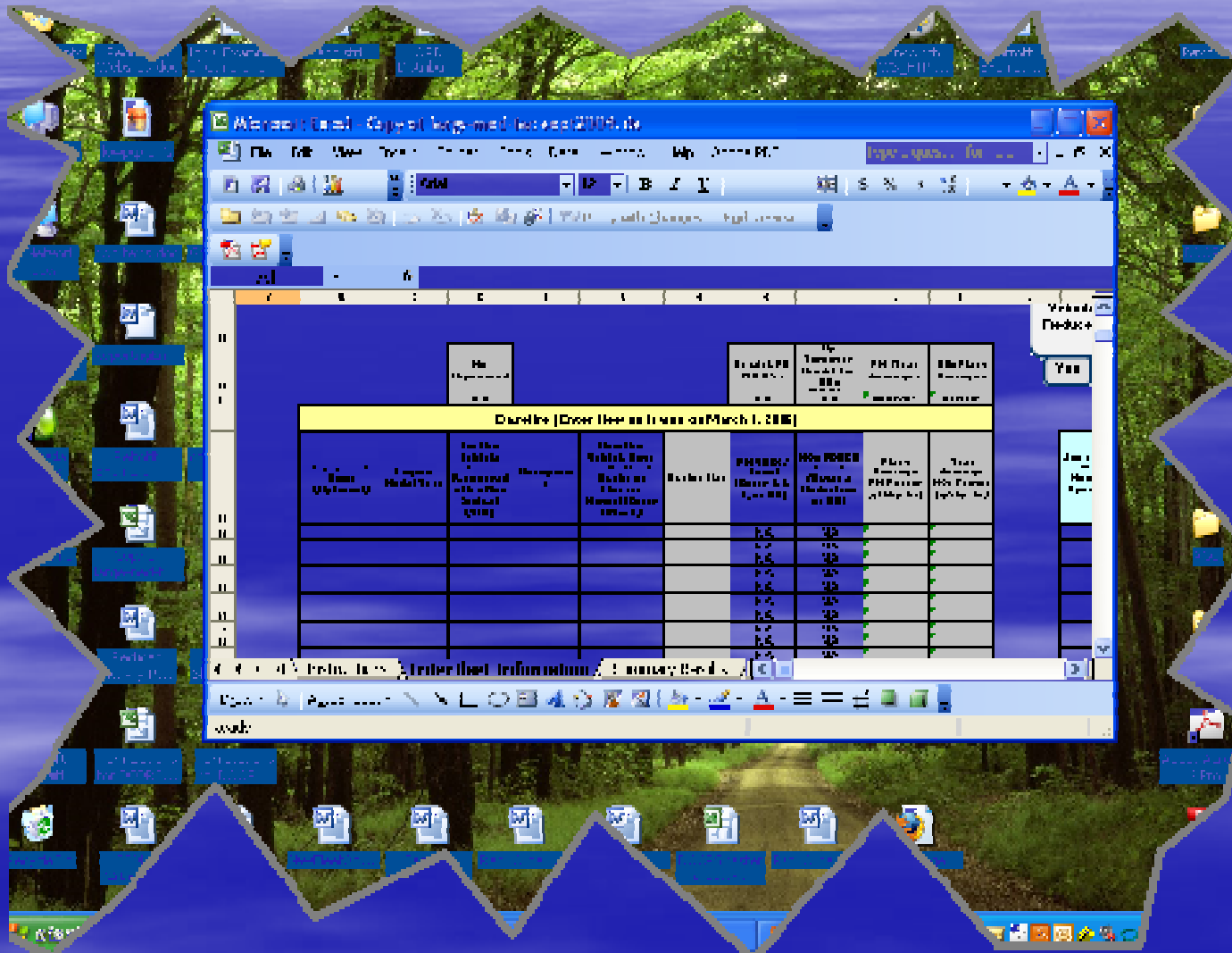
- Additional features built in
 - Tutorials
 - Button to add rows



Brief Survey

- Used the old calculator?
- Used the new calculator?
- Compliance plan using calculator past 2010?
- Used other compliance tools?

Calculator Demo



Calculator Demo

- Entering March 1, 2006 fleet

Baseline (Enter fleet as it was on March 1, 2006)				
Equipment Name (Optional)	Engine Model Year	Has this Vehicle been Repowered with a New Engine? (Y/N)	Horsepower	Does this Vehi Have an On-Ro Engine or Elect Motor? (Enter or E)
1	2002		234	
2	2001		410	
3	1990		190	

Calculator Demo

Adding
in
actions

March 1, 2006, to March 1, 2007			
Equipment Name (Optional)	Engine Model Year	Has this Vehicle been Repowered with a New Engine? (Y/N)	Horsepower
1	2002		234
2	2001		410
3	2005	Y	190
4	1987		180
5	2001		170
6	2005		160
7	R		

Calculator Demo

- Reduced hours of activity

Jan to Dec, 2007 - Hours of Operation =	If vehicle was not in fleet throughout 2007, days in fleet (out of 365).	Equipment Name (Optional)	Engine Model Year	Has this Vehicle been Repowered with a New Engine? (Y/N)	Horsepower
459		1	2002		234
340		2	2001		410
876		3	2005	Y	190
278		4	1987		180
459		5	2001		170
348		6	2005		160
178	23	7	R		

Calculator Demo

- Claiming reduced activity without vehicle hours

		<u>F</u>
Claim a Reduction =	15	NOx F Targ
		NOx F

Calculator Demo

Early Reduced Horsepower Credit =	733
Reduced Activity Credit	287
Early Repower, NOx Retrofit Credit Earned through 2009 (hp):	190.0

- Credits summarized

- Fleet averages
- BACT requirements
- Results

<u>Fleet Average</u>		<u>BACT</u>	
NOx Fleet Target =	6.1	Needed Hp Turnover =	528.0
NOx Fleet Average =	7.2		
NOx Fleet Average w/ Hours =	8.7	Current Hp Turnover =	1210.2

DOORS

- Similar function, based off DOORS input
- Not in Excel
- Same calculations used
- Currently in testing

MY	2007 Hours	2010 Hours
2002	86	9
2002	234	9
2003	453	9
2003	87	9
2004	724	9
2005	212	9

Compliance Planning Discussion

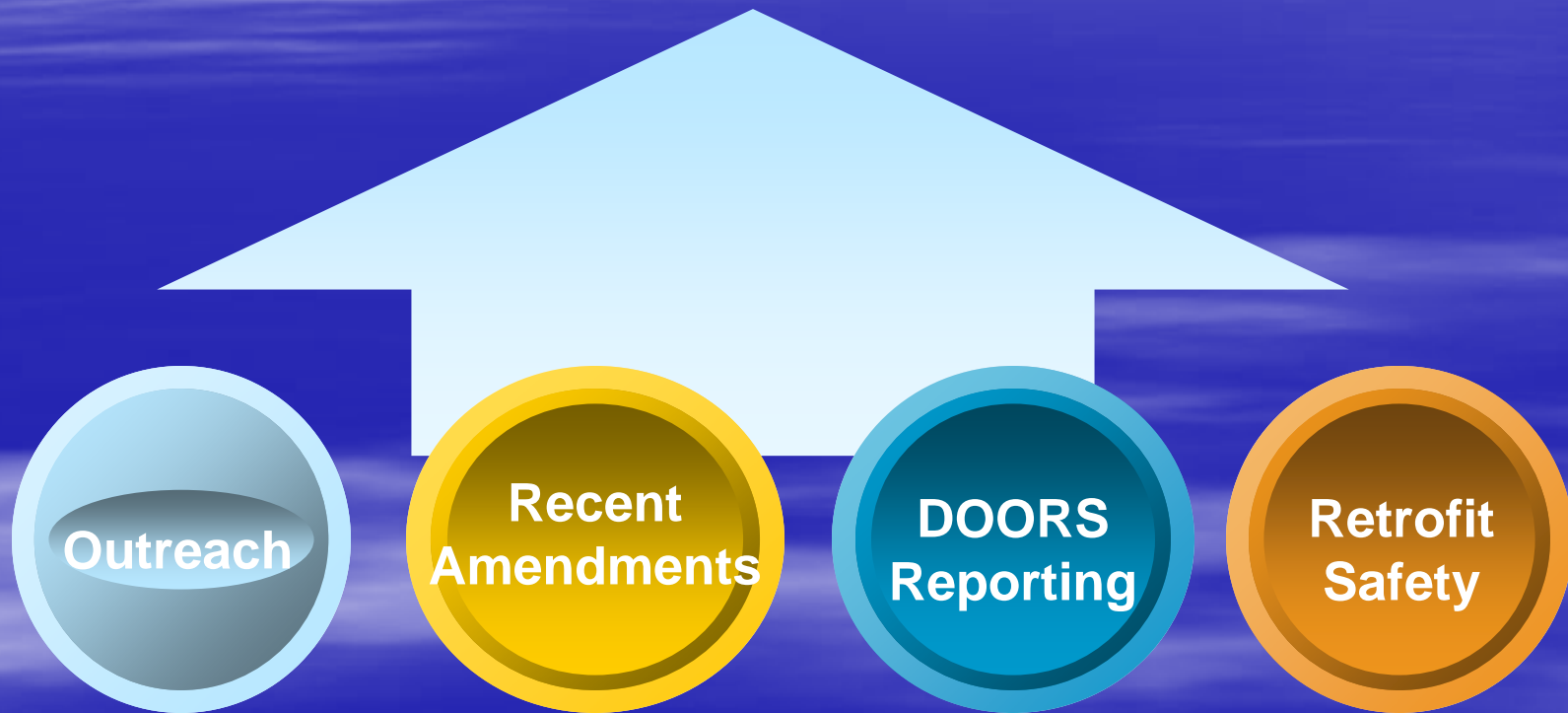
- What information does your fleet need?
 - Guide
 - Step-by-step instructions
- What features or tools would be useful?

Other thoughts / comments?

Additional Feedback

- What method worked best in getting information into the calculator?
- Updates staff are considering for the future:
 - Low use after 2010
 - Adding vehicle requirements
 - Exemptions
 - Paper version for small fleets?

Regulation Implementation Update



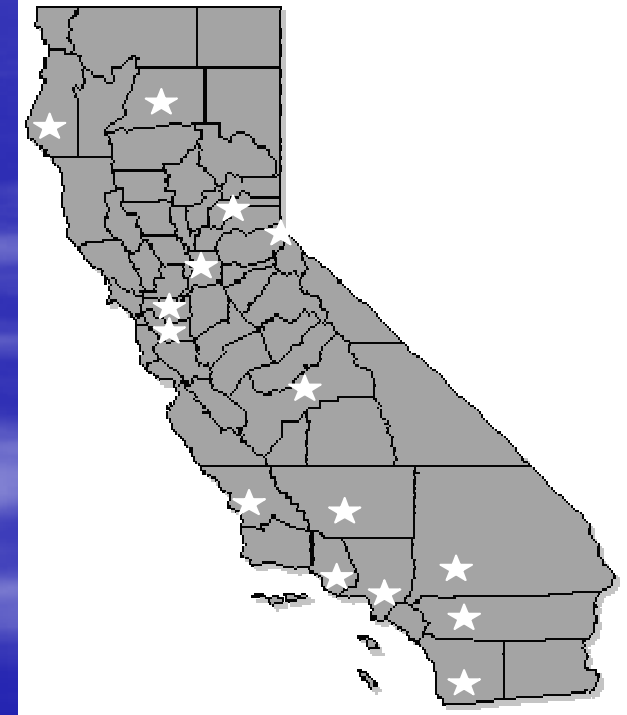
Beth White

Outreach

- **Contractor's State Licensing Board (CSLB)**
 - ~ 45,000 off-road flyers sent with contractor's license renewal notice
 - 50,000 more notices over next 4 - 6 months
- **Letters**
 - Household hazardous
 - E-waste facilities
 - Auto dismantlers
 - Biomass facilities
 - Hardware stores
 - Fertilizer companies
 - Lumber yards
 - Recycling facilities
 - Fencing companies
 - Landscaping companies
 - Drilling companies
 - School districts
 - State colleges
- **Door hangers**

Training Seminars

- Implementation Training Seminars done statewide (July 2008 - September 2009)
 - Half day seminars
 - 4 series
 - 38 in over 20 cities
 - Over 3,000 attendees
 - July 2009 – September 2009
 - Smaller class sizes
 - Northern, Central, and Southern CA



Future Training Seminars

- **Could do training for large fleets prior to March 2010 deadline**
- **Topics?**
 - Overview
 - New credits
 - Fleet average calculator
 - Compliance planning
 - Retrofit visibility policy
 - Other

Other Outreach/Training

- **May**
 - Peterson and Quinn presentations
 - Off-Road and On-Road Workshops with air districts
- **May, June, & September: Turf Star Field Events**
- **July**
 - Engineering & General Contractors Association (EGCA) and fleets in southern California
- **August: Insurance Services - Napa**
- **October: CalCIMA in Tahoe and local fleets**
- **September through November**
 - On-road and off-road diesel regulations training seminars (last one November 10 – Santa Rosa)

Guidance Documents Currently Posted

- Overview (available in Spanish)
- Total: 37
- Interactive search feature under development
- New
 - Early Credits
 - Emission Factors
 - Engine hp
 - Annual reporting requirements
 - Vehicles used for parts

Amendments: December 2008 and January 2009

- **December 2008**
 - 2 engine cranes added
 - Submitted to Office of Administrative Law
- **January 2009**
 - Extend double credit for early PM retrofits
 - Removal of changing fleet size requirements
 - Minor clarifications
 - No 15 day modifications
 - Final Statement of Reasons will go to OAL by December 4

July 2009 Amendments

- **Bifurcation**
 - **AB 8 2X amendments**
 - **No Administrative Procedure Act (APA) requirements**
 - **Other amendments**
 - **15 day modifications**
 - **APA requirements**

Other Amendments

- **15 day modifications**
 - Change “impossible” to “technologically infeasible”
- **Process**
 - Final Statement Of Reasons
 - Office of Administrative Law
 - Secretary of State
 - Amendments become effective
- **Regulatory language with pending modifications posted**
 - For clarity and convenience

Current DOORS Off-Road Reports

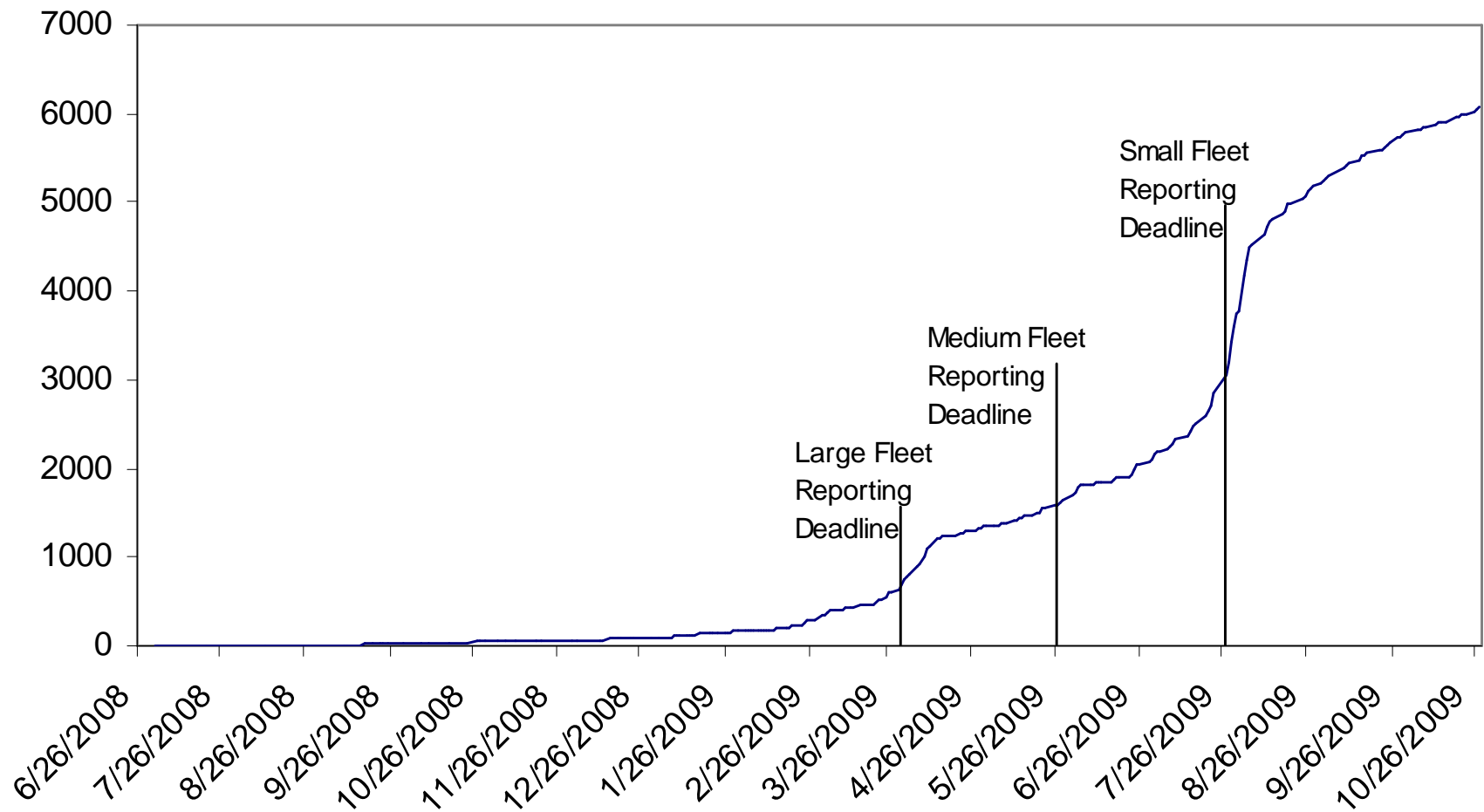


DOORS Reporting Data

- **Extent of reporting so far**
- **Vehicle types**
- **Tier distribution**
- **Fleet size distribution**

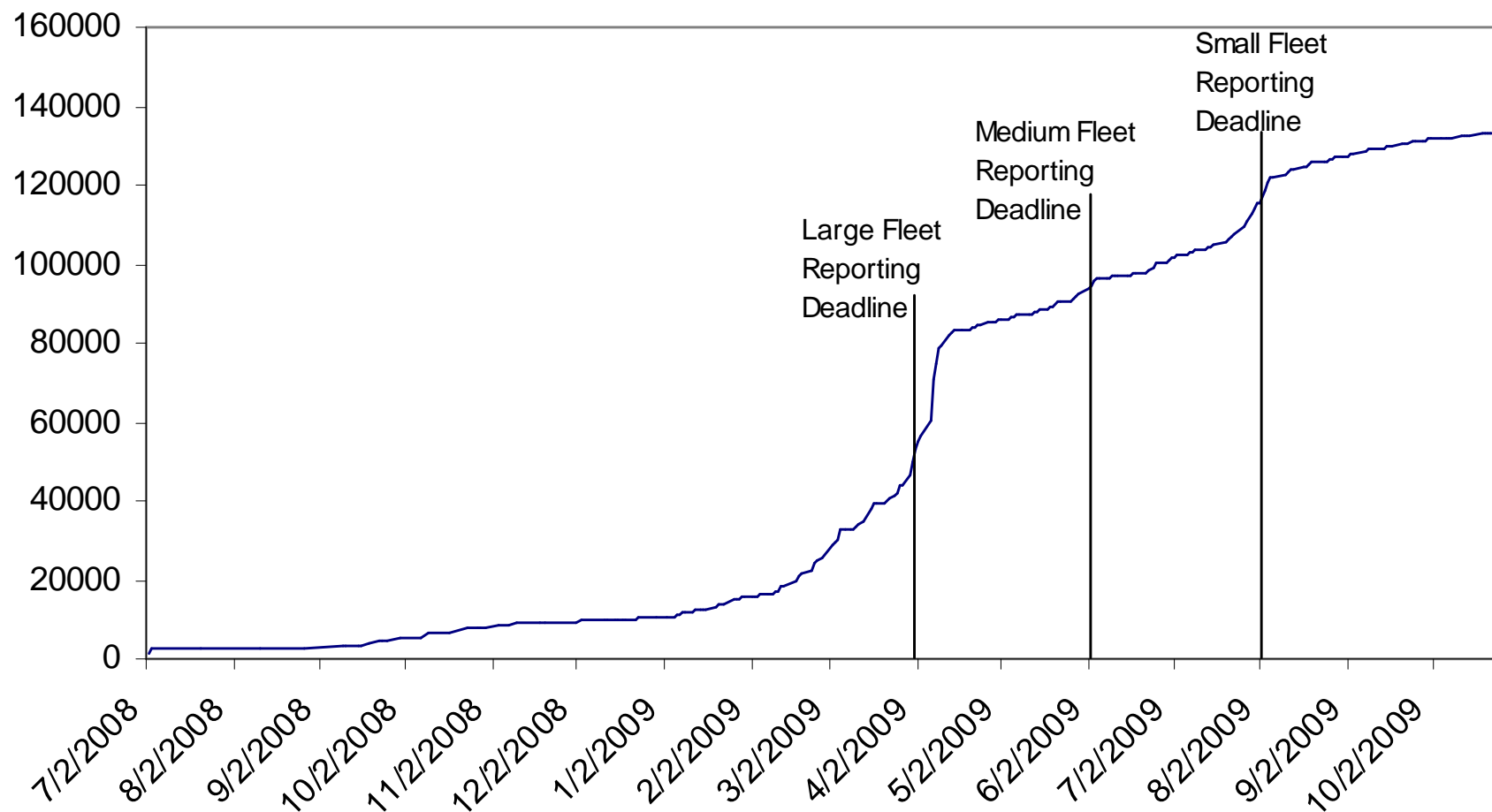
Fleets Reported (Daily)

Fleets Reported: 6,064

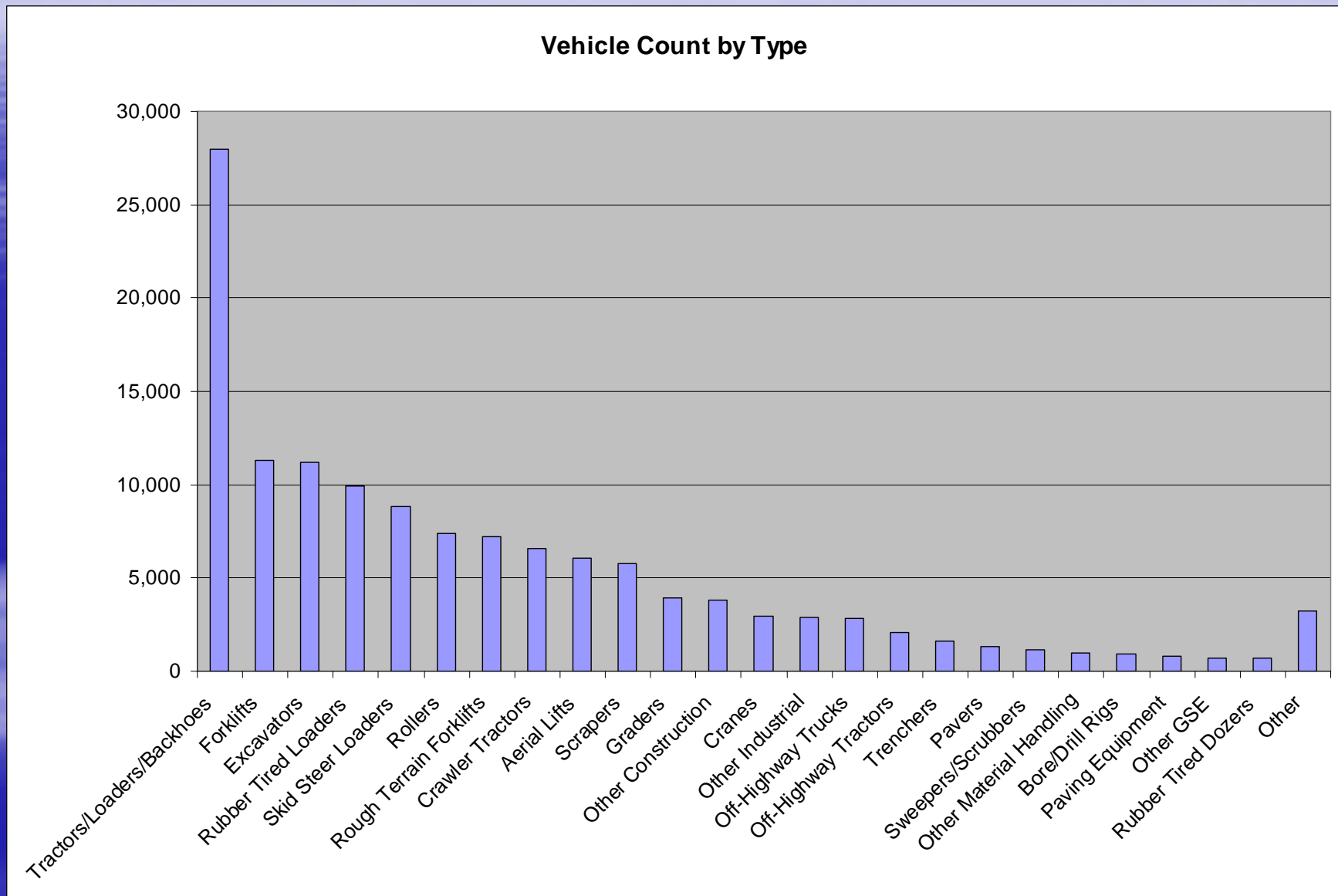


Vehicles Reported (Daily)

Vehicles Reported: 133,871

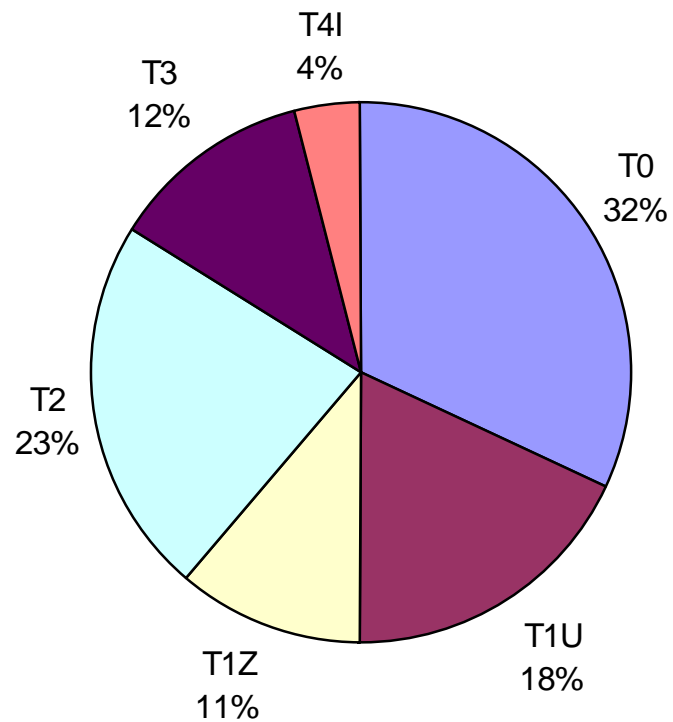


Vehicle Population by Type

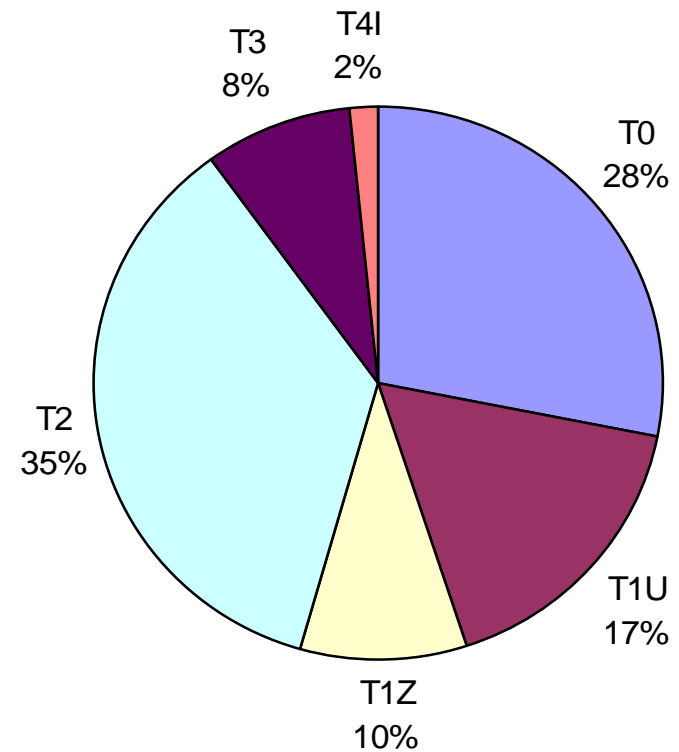


Tier Distribution

Tier Distribution - Predicted

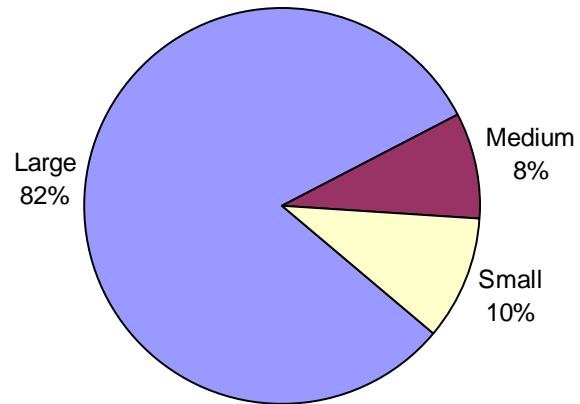


Tier Distribution - Reported

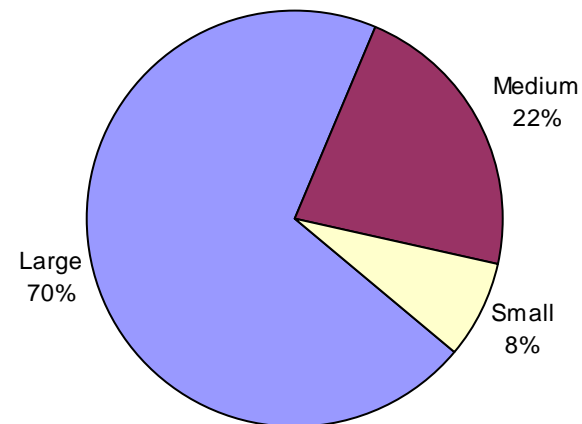


Fleet Size Distribution

**Fleet Size Distribution by Horsepower
(Predicted)**



**Fleet Size Distribution by Horsepower
(Reported)**



VDECS Extensions

Product	Passive / Active	Applicability
DCL MINE-X Sootfilter	Passive	1996 - 2009 MY (recently extended from 2008), rubber tired; 100 - 1,000 hp
HUSS Umwelttechnik FS_MK	Active	Most engines through 2009 model year (recently extended from 2007), active fuel-burner
ESW Canada ThermaCat	Active	Certain 1996 - 2009 MY, 175 - 300 hp, 5 - 10 L (recently extended to include certain 15.2 liter off-road diesel engines rated up to 350 hp)

Retrofit Safety

Lonestar NOx and PM system



Retrofit Safety - Petition 507

- **AGC and Operating Engineers Local 3 filed with OSHSB (August 7, 2008)**
 - **Asked OSHSB to amend Title 8 to:**
 - **Ban modifications without “prior written approval from vehicle’s manufacturer”**
 - **Ban modifications that could cause thermal hazards**
 - **Ban modifications to avoid impairing vision, including to the rear**
- **OSHSB considered at Nov. 20, 2008 board meeting**
- **Decision: Develop rulemaking proposal**
 - **OSHSB staff to work with Petitioners, ARB, and other affected parties**

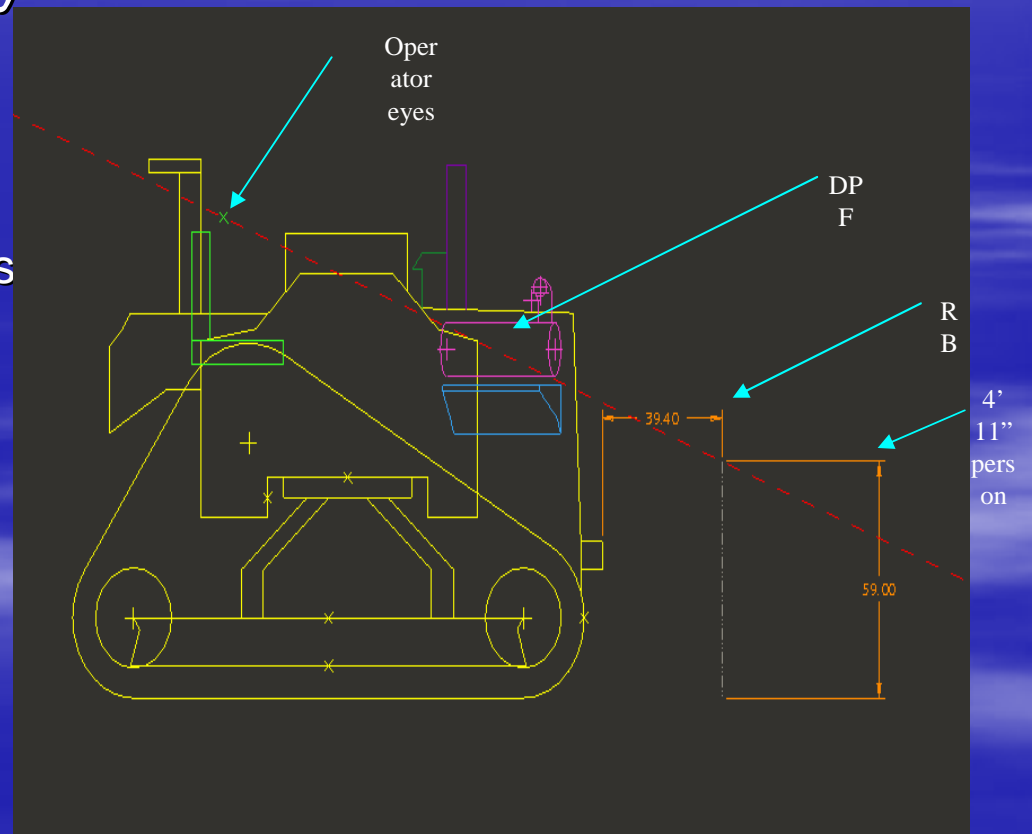
ARB/CalOSHA Retrofit Safety Work Since November 2008

- Investigated possible standards for evaluating retrofit safety - ISO5006
 - 1 meter test (simulates workers on the ground near the vehicle)
 - 12 meter test
 - Widely used for new equipment design

ARB/CalOSHA Retrofit Safety Work Since November 2008 Cont'd

– Off-Road Retrofit Visibility Field Study

- 13 vehicles assessed
 - Different types, model years, and manufacturers
 - 1 meter and 12 meter testing
 - Discussed results
- ## – Investigations/ discussions ongoing



Interim Retrofit Visibility Policy

- Issued by ARB & OSHSB on October 21
- For the 2010 compliance date ONLY
 - ARB will exempt vehicle from retrofit if cannot be retrofit without increasing visibility masking to front, sides, or rear
 - Vehicle exempted only for March 1, 2010 compliance date
 - May have to be retrofit in future

Application for Safety Exemption

- **Soon to be posted**
 - Instructions and exemption form
- **Steps to apply for exemption**
 - Professional Engineer: assess multiple locations for retrofit
 - If no retrofit possible without impairing visibility, complete exemption form
 - Quantify minimum masking retrofit would cause
 - Submit application to ARB

Safety Information and Procedures: VDECS for Off-road Vehicles

Verified Retrofits for Off-Road Diesel Vehicles: Safety - Windows Internet Explorer provided by Yahoo!

http://www.arb.ca.gov/msprog/ordiesel/vdecssafety.htm

File Edit View Favorites Tools Help

Favorites Suggested Sites eBay Free Hotmail My Yahoo! Yahoo! Answers Yahoo! Downloads Yahoo! Mail Free AOL & Unlimited I... Web Slice Gallery Yahoo!

Verified Retrofits for Off-Road Diesel Vehicle...

ARB Programs
 ↳ Diesel Program
 ↳ Mobile Vehicles and Equipment
 ↳ Mobile Sources
 ↳ Operators
 ↳ Off-Road Diesel

LOCAL LINKS
 ↳ Archived Documents
 ↳ Background
 ↳ Contacts
 ↳ Current Regulation
 ↳ Diesel Exhaust Retrofits
 ↳ DOORS Public Information
 ↳ EIN Label Vendors
 ↳ Fact Sheets, FAQs, Advisories
 ↳ Fleet Average Calculators
 ↳ Join Email list
 ↳ Low Population Counties
 ↳ ORIAG
 ↳ Related Links
 ↳ Reporting Forms and Tools
 ↳ Rulemaking Documents
 ↳ Original Regulation
 ↳ Jan 2009 Amendments
 ↳ July 2009 Amendments
 ↳ Workshops / Meetings

Safety Information and Procedures: Verified Diesel Emissions Control Strategies (VDECS) for Off-road Vehicles

In this page, jump to:
[Example Installations](#) - [Exempt Vehicles](#) - [Visibility Standards](#) - [Exemptions Process Information](#)

ARB, the Occupational Safety and Health Standards Board, and the Division of Occupational Safety and Health (Cal/OSHA) have agreed on an [interim retrofit visibility policy](#) to address retrofit visibility concerns for off-road diesel vehicles. This policy will be used to address visibility concerns regarding retrofits required by the March 1, 2010, in-use off-road diesel vehicle regulation compliance date for large fleets.

Currently, the exact procedures to determine the visibility impact of a retrofit (and if necessary, to claim an exemption) are being refined by Cal/OSHA and ARB staff, and will be released as soon as possible. The concept behind the procedure, and the process to claim an exemption, are summarized below.

[View the Interim Visibility Policy Online Here](#)

[Off-Road Retrofit General Information](#)

Example Installations with No Visibility Impairment

The vehicles listed below were retrofit in a manner that meets the interim retrofit visibility agreement (i.e. prevents the device from blocking the line of sight of the operator in any direction). These are not the only method in which the vehicles could be safely retrofit, they are just one example of a way to retrofit such vehicles without impairing visibility. These vehicles make and models, which have been retrofit without impairing visibility, will not be granted a safety exemption from the off-road regulation retrofit requirements unless they can demonstrate why a similar installation will not work for their vehicle.

Vehicle	Engine	Description	Pictures
Backhoe 2000 Caterpillar 416C	86 Hp 2000 Perkins CAT 3204	Underhood installation, using existing exhaust pipe. No change in visibility.	
Off-road Forklift 2005 Hyster 300	174 Hp 2005 Perkins 2182	Underhood installation, using existing exhaust pipe. No change in visibility.	
Loader 1999 Caterpillar 914G	95.8 Hp 1999 Perkins 3054	Underhood installation, using existing exhaust pipe. No change in visibility.	
Excavator 2002 Caterpillar 345BL	439 Hp 2002 Caterpillar 3176C	Installation incorporated into engine cover, using existing exhaust pipe. No change in visibility.	

Information regarding additional vehicles that have been retrofit zero impact visibility will posted as it becomes available.

Start | WI... | WI... | ge... | Mi... | OR... | Ho... | Do... | Ve... | 7:40 PM

Fleets that Receive Exemptions

- For fleets that receive exemptions, Off-Road regulatory requirements still apply
- For example
 - Fleet with 100 vehicles, and 10,000 horsepower total
 - Must retrofit 20% (2,000 hp)
 - If fleet receives exemptions for 60 vehicles (6,000 hp), fleet still must retrofit 2,000 hp

Visibility Test Method Development

- Define consistent position from which to measure visibility
- Define process for near and far field visibility
- Step by step reproducible method



Retrofit Visibility Data Gathering

- Over next 6 months - compile data
- Data from three sources
 - Already retrofit with 0 visibility impact
 - Retrofit feasibility for other common vehicle types
 - Vehicle exemption requests
- Data to be evaluated by ARB & Cal/OSHA

New Retirement and Reduced Activity Credits



Cory Parmer

Credit Overview

Credits added by AB8 2X

- Credit for reduced fleet size (retirement)
 - March, 2006 to March, 2010
- Credit for reduced activity
 - 2007 compared to March, 2009, to March, 2010
 - Numerous indicators allowed
- Guidance on all early credits released
 - Email / Knowledge Center

www.arb.ca.gov/msprog/ordiesel/knowcenter.htm

Credit for Retirement: Guidance

- PM and NOx credit
 - March 1, 2006, Hp minus March 1, 2010, Hp
- Fleets must report all vehicles in the fleet from March 1, 2006, onward
- Are all fleets (large in particular) aware of this credit?
- Further guidance needed?

Records & Submittal

- Fleet owners must keep records of invoice or bill of sale
- Would more guidance on what to keep, and suggestions for how to organize records, assist fleets?



Reduced Activity

- Jan. 1, 2007 to Dec. 1, 2007 activity
Vs
- March 1, 2009, to March 1, 2010, activity
- Can input hours for each vehicle
- If no vehicle hours, can use other records

Reduced Activity Records

Records Used	Maximum Claim
Business Revenue	20 Percent
Total Employment	20 Percent
Resources/Services (tons mined, flights run, acres cleared, etc.)	20 Percent
Off-road Diesel Fuel Use	No Cap
Operating Engineer Hours Paid	No Cap

Claiming Reduced Activity

1. Report very basic information in DOORS
2. Fill out ARB form with more information
3. Send in records (paper or electronic) with the full background and details

No credits granted if process is not completed.

Claiming Reduced Activity

1. DOORS Information

- Vehicle Hours
 - Total hours for both periods
- All other records
 - Percent decrease

Available now

(in DOORS, “Claim Reduced Activity Credit”)

Similar to input into the fleet average calculator.

Claiming Reduced Activity

2. ARB Form will include

- If hours used:
 - More detail on method (hour meter, maintenance logs, job tracking)
 - Dates hour logged (4 dates per vehicle)
- Other records
 - Operator hours: split into hours per operator
 - Diesel fuel use: split into purchases
 - Overall employment: number of employees in each period

Claiming Reduced Activity

3. Full records submittal

- Printout/pdf of tracking database
 - Copies of operator timesheets
 - Copies of fuel receipts
 - Other?
-
- Above 100 pages, electronic submittal required
 - Comments / questions?

Flexibility on Dates



- Will accept any period inside of 2007
 - (e.g. January 23, 2007, to November 26, 2007)
 - May use dates outside 2007 (up to 14 months total) but then must scale hours down
- Will accept any period outside Mar. 09 to Mar. 10
 - (e.g. February 20, 2009, to March 9, 2010)
 - May use dates inside Mar. 09 – Mar. 10 (at least 10 months) but must then scale hours up

Flexibility in Vehicle Hours

- 95% of vehicles logged to receive full credit
- 75% of vehicles logged to receive same level of credit as off-road diesel fuel use or operator hours
- If under 75%, must use a different indicator

Comments on Reduced Activity

- What will the challenges be for fleets when producing records?
- Sufficient flexibility?
- April 1, 2010, reporting deadline: will flexibility be needed for mailed in records?

Questions / Comments

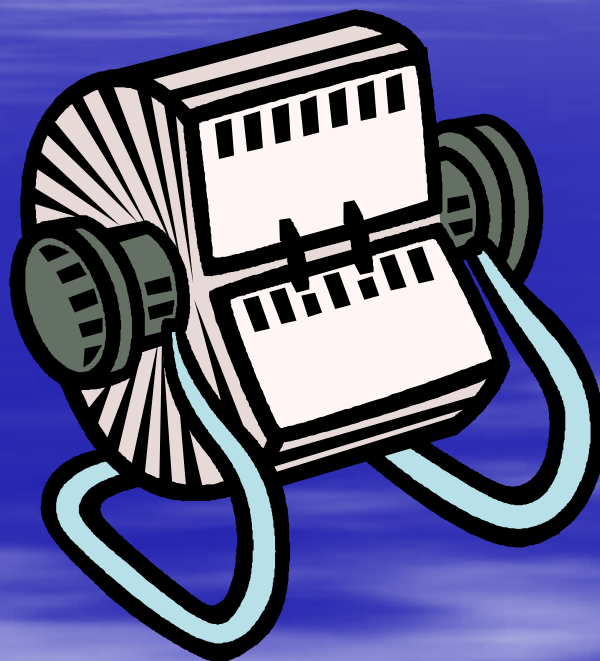
Public Comment Period

Email for sending comments:

eiwhite@arb.ca.gov



ARB Website and Contacts



California Environmental Protection Agency
Air Resources Board



Off-Road Contacts

General Off-Road Regulation Questions:

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Cory Parmer, Staff
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DOORS Hotline:
1-877-59DOORS
(1-877-593-6677)

Knowledge Center - <http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm>
Off-Road Regulation - www.arb.ca.gov/msprog/ordiesel/ordiesel.htm
Diesel Hotline - 1-866-6DIESEL (1-866-634-3735)